

EXECUTIVE SUMMARY

This EIS¹ analyzes the environmental impacts of leasing five tracts of federal coal reserves adjacent to existing surface coal mines in the southern PRB. Operators of four mines, North Antelope/Rochelle Complex, Black Thunder, North Rochelle, and Antelope, have filed four applications to lease five tracts of federal coal as maintenance tracts under the regulations at Title 43 of the Code of Federal Regulations Part 3425.1 (43 CFR 3425.1) Leasing On Application. All four applications have been reviewed by the BLM Wyoming State Office, Division of Minerals and Lands Authorization. That office determined that all four lease applications met the regulatory requirements for lease by applications, or LBAs. The five LBA tracts considered in this EIS and the adjacent mines are shown in Figure ES-1. They are the NARO North and NARO South LBA Tracts, adjacent to the North Antelope/Rochelle Complex; the Little Thunder LBA Tract, adjacent to the Black Thunder Mine; the West Roundup LBA Tract, adjacent to the North Rochelle Mine; and the West Antelope LBA Tract, adjacent to the Antelope Mine. The applications are summarized below.

On March 10, 2000, PRCC filed one application with the BLM for federal coal reserves in two maintenance tracts adjacent to the North Antelope/Rochelle Complex. The tracts are referred to as the NARO North and NARO South LBA Tracts.

The NARO North LBA Tract is located in southern Campbell County, Wyoming, approximately 13 miles southeast of Wright, Wyoming. The NARO South LBA Tract is located in southern Campbell County and northern Converse County, Wyoming, approximately 19 miles southeast of Wright, Wyoming (Figure ES-1). BLM determined that the two tracts in the application would be processed separately and, if the decision is made to hold a lease sale for both tracts, they would be offered for sale separately. PRCC's coal lease application was assigned case file numbers WYW150210 (NARO North) and WYW154001 (NARO South). The North Antelope/Rochelle Complex is operated by PRCC, a subsidiary of Peabody Holding Company, Inc.

On March 23, 2000, ALC filed an application with the BLM for federal coal reserves in a maintenance tract located west of and immediately adjacent to the Black Thunder Mine. ALC is a subsidiary of Arch Coal, Inc. The tract, which is referred to as the Little Thunder LBA Tract, was assigned case file number WYW150318. The application area is located in southern Campbell County, Wyoming, approximately six miles east-southeast of Wright, Wyoming (Figure ES-1). The Black Thunder Mine is operated by TBCC, a subsidiary of Arch Western Resources, LLC.

On July 28, 2000, TCC filed an application with the BLM for federal coal reserves in a maintenance tract

¹ Refer to page xii for a list of abbreviations and acronyms used in this document.

Figure ES-1

located west of and immediately adjacent to the North Rochelle Mine. The application area is located in southern Campbell County, Wyoming, approximately 10 miles southeast of Wright, Wyoming (Figure ES-1). The tract, which is referred to as the West Roundup LBA Tract, was assigned case file number WYW151134. The North Rochelle Mine is operated by TCC, a subsidiary of Vulcan Intermediary, LLC.

On September 12, 2000, ACC filed an application with the BLM for federal coal reserves in a maintenance tract located west of and immediately adjacent to the Antelope Mine. The tract, which is referred to as the West Antelope LBA Tract, was assigned case file number WYW151643. The application area is located in southern Campbell County and northern Converse County, Wyoming, approximately 19 miles south-southeast of Wright, Wyoming (Figure ES-1). The Antelope Mine is operated by ACC, a subsidiary of Kennecott Energy Company.

These federal coal lands are located within the Powder River Federal Coal Region, which was decertified in January 1990. Although the Powder River Federal Coal Region is decertified, the PRRCT, a federal/state advisory board established to develop recommendations concerning management of federal coal in the region, has continued to meet regularly and review all federal lease applications in the region. The PRRCT reviewed these four maintenance coal lease applications at a public meeting held on October 25, 2000, in Cheyenne, Wyoming.

The PRRCT recommended that the BLM continue to process all four lease applications at that meeting.

To evaluate the environmental impacts of leasing and mining the coal, the BLM must prepare an EA or an EIS to evaluate the site-specific and cumulative environmental and socioeconomic impacts of leasing and developing the federal coal in the application area. BLM does not authorize mining by issuing a lease for federal coal, but the impacts of mining the coal are considered in this EIS because it is a logical consequence of issuing a lease. The BLM determined that one EIS would be prepared to evaluate the environmental impacts of coal mining that would result from the issuance of these five leases. This EIS has been prepared to evaluate the site-specific and cumulative environmental impacts of leasing and developing the federal coal included in these application areas, as required by NEPA. Scoping for these lease applications was conducted from October 1 to October 31, 2001. A Notice of Scoping and Notice of Intent to Prepare an EIS was published in the *Federal Register* on October 3, 2001 and in the Gillette News-Record on September 25, 2001 and October 2, 2001. A public scoping meeting was held in Gillette, Wyoming on October 10, 2001.

BLM will use the analysis in this EIS to decide whether or not to hold separate public, competitive, sealed-bid coal lease sales and issue federal coal leases for the federal coal included in each tract. For each sale that is held, the bidding at that sale

would be open to any qualified bidder; it would not be limited to the applicant. For each lease sale that is held, a federal coal lease would be issued to the highest bidder at the sale if a federal sale panel determined that the high bid at that sale meets or exceeds the fair market value of the coal as determined by BLM's economic evaluation, and if the U.S. Department of Justice determines that there are no antitrust violations if a lease is issued to the high bidder at the sale.

OSM and USFS are cooperating agencies on this EIS. OSM will use the analysis in this EIS to make decisions related to mining the federal coal in these tracts, if they are leased. The USFS is a cooperating agency on this EIS because the NARO North, Little Thunder, and West Roundup LBA Tracts include lands that are part of the TBNG, which is administered by the USFS.

The lands in the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts have been subjected to four coal planning screens and determined to be acceptable for consideration for leasing. A decision to lease the federal coal lands in this application would be in conformance with the *Approved Resource Management Plan for Public Lands Administered by the Bureau of Land Management Buffalo Field Office (BLM 2001a)* [an update of the *Buffalo Resource Area Resource Management Plan* (BLM 1985a)] and the *BLM Platte River Resource Area Resource Management Plan* (BLM 1985b). The federal surface lands managed by the USFS in the NARO

North, Little Thunder, and West Roundup LBA Tracts are within the area evaluated in the USFS *Medicine Bow National Forest and Thunder Basin National Grassland Land and Resource Management Plan* (USFS 1985) and the *Final EIS for the Northern Great Plains Management Plans Revision for Thunder Basin National Grassland* (USFS 2002a).

The LBA sale process is, by law and regulation, an open, public, competitive sealed-bid process. For each lease sale that is held, the applicant may not be the successful high bidder. The analysis in this EIS assumes that the applicant would be the successful bidder on each LBA tract that is offered for sale and that each tract that is leased would be mined as a maintenance tract for the applicant mine.

This draft EIS analyzes different alternatives for each tract. For each tract, the Proposed Action considers leasing the tract as it was applied for.

Alternative 1 for each tract is the No Action Alternative. Alternative 1 for each tract considers rejecting the lease application for that tract. Under each Alternative 1, the tract would not be leased but the existing leases at the adjacent mine or mines would be developed according to the existing approved mining and reclamation plans.

BLM is evaluating adding coal to or removing coal from the tracts in order to avoid potential future bypass situations or to increase the competitiveness of the tracts or the remaining unleased federal coal in

this area. These different tract configurations are considered as other alternatives in this EIS.

The Proposed Actions and alternatives for the NARO North and South, Little Thunder, West Roundup, and West Antelope LBA Tracts are shown in Figure ES-2, ES-3, ES-4, and ES-5, respectively. The Proposed Actions and alternatives are described in Tables ES-1, ES-2, ES-3, and ES-4.

Other alternatives that were considered but not analyzed in detail include holding competitive coal lease sales and issuing leases for one or more of the tracts to the successful bidder (not the applicant) for the purpose of developing a new stand-alone mine and delaying the competitive sales of one or more of the LBA tracts.

Critical elements of the human environment (BLM 1988) that could be affected by the proposed project include air quality, cultural resources, Native American religious concerns, threatened, endangered, proposed, and candidate plant and animal species, USFS sensitive species, hazardous or solid wastes, water quality, wetlands/riparian zones, environmental justice, and invasive nonnative species. Five critical elements (areas of critical environmental concern, prime and unique farmland, wild and scenic rivers, floodplains, and wilderness) are not present in the project area and are not addressed further. In addition to the critical elements that are potentially present in the project area, this EIS discusses the status

and potential effects of the project on topography and physiography, geology and mineral resources, soils, water availability and quality, AVFs, vegetation, wildlife, land use and recreation, paleontological resources, visual resources, noise, transportation resources, and socioeconomics.

The General Analysis Area, shown in Figure ES-6, is located in the PRB, a part of the Northern Great Plains that includes most of northeastern Wyoming. The NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts are located in the south-central part of the PRB, where the elevation ranges from about 4,500 to 5,000 ft.

In the General Analysis Area, there are up to four mineable coal seams. The nomenclature of these seams varies from mine operator to mine operator and the number of mineable coal seams varies from tract to tract. There is one mineable seam in the West Roundup LBA Tract (referred to by TCC as the Wyodak); there are two mineable coal seams in the NARO North and NARO South LBA Tracts (referred to by PRCC as the Wyodak-Anderson 1 and 2); three mineable coal seams in the Little Thunder LBA Tract (referred to by TBCC as the Upper, Middle, and Lower Wyodak); and four mineable seams in the West Antelope LBA Tract (referred to by

Figure ES-2

Figure ES-3

Figure ES-4

Figure ES-5

Table ES-1. Summary Comparison of Coal Production, Surface Disturbance, and Mine Life for NARO North and NARO South LBA Tracts and North Antelope/Rochelle Complex.

Item	No Action Alternative (Existing North Antelope/Rochelle Complex)	Added by Proposed Action	Added by Alternative 2	Added by Alternative 3
In-Place Coal (as of 1/1/02)	952 mmt	564 mmt	710 mmt	464.4 mmt
Recoverable Coal (as of 1/1/02) ¹	904.4 mmt	506.9 mmt	613.9 mmt	434.9 mmt
Coal Mined Through 2001	643 mmt	—	—	—
Lease Area ²	14,895.5 ac	4,503.02 ac	5,571.19 ac	3,776.27 ac
Total Area To Be Disturbed ²	20,410 ac	5,590 ac	6,275 ac	4,863 ac
Permit Area ²	27,187 ac	21,035 ac	21,835 ac	21,035 ac
Average Annual Post-2001 Coal Production	75 mmt	15 mmt	15 mmt	15 mmt
Maximum Annual Post-2001 Coal Production (years 2004-2006)	105 mmt	0 mmt	0 mmt	0 mmt
Remaining Life Of Mine (post-2001)	12 yrs	4 yrs	5.5 yrs	3 yrs
Average No. of Employees (at maximum production rate)	1,175	10	10	10
Total Projected State Revenues (post-2001) ³	\$ 994.8 million	\$ 557.6 million	\$ 675.3 million	\$ 478.4 million
Total Projected Federal Revenues (post-2001) ⁴	\$ 745.5 million	\$ 421.8 million	\$ 514.4 million	\$ 359.4 million

¹ Assumes 95 percent recovery of leased coal (with the exception of the NARO South Tract as proposed, which is estimated to be 83 percent recovery of leased coal; the NARO South Alternative 2 Tract, which is estimated to be 79 percent recovery of leased coal; and NARO South Alternative 3 Tract, which is estimated to be 91 percent recovery of leased coal).

² For the Proposed Action and Alternatives 2 and 3, the disturbed acreage exceeds the leased acreage because of the need for highwall reduction, topsoil removal and other activities outside the lease boundaries. When added to the existing mine, the permit area is larger than leased or disturbed areas to assure that all disturbed lands are within the permit boundary and to allow easily defined legal land description. Permit areas under Proposed Action and Alternatives 2 and 3 are the anticipated permit amendment baseline study areas.

³ Projected revenue to the State of Wyoming is \$1.10 per ton of coal sold and includes income from severance tax, property and production taxes, sales and use taxes, and Wyoming's share of federal royalty payments and bonus bids (University of Wyoming 1994).

⁴ Federal revenues are based on \$5.00 per ton price × amount of recoverable coal × federal royalty of 12.5 percent minus State's 50 percent share, plus \$0.35 per ton for AML fees × amount of recoverable coal minus State's 50 percent share, plus \$5.00 per ton price × amount of recoverable coal × black lung tax of 4.0 percent, plus bonus payment on LBA leased coal of \$0.26 per ton (based on average of last 11 LBAs) × amount of in-place coal minus State's 50 percent share.

Table ES-2. Summary Comparison of Coal Production, Surface Disturbance, and Mine Life for Little Thunder LBA Tract and Black Thunder Mine.

Item	No Action Alternative (Existing Black Thunder Mine)	Added by Proposed Action	Added by Alternative 2	Added by Alternative 3 (North Tract)	Added by Alternative 3 (South Tract)
In-Place Coal (as of 1/1/02)	968.7 mmt	479.3 mmt	695.3 mmt	155.7 mmt	539.6 mmt
Recoverable Coal (as of 1/1/02) ¹	920.3 mmt	440 mmt	553 mmt	111.9 mmt	441.1 mmt
Coal Mined Through 2001	699.9 mmt	—	—	—	—
Lease Area ²	12,772.9 ac	3,449.32 ac	5,083.5 ac	1,065.49 ac	4,018.01 ac
Total Area To Be Disturbed ²	18,476 ac	5,424 ac	6,577 ac	1,382 ac	5,195 ac
Permit Area ²	21,238 ac	7,678 ac	7,678 ac	1,612.4 ac	6,065.6 ac
Average Annual Post-2001 Coal Production	38.3 mmt	4.2 mmt	4.2 mmt	4.2 mmt	4.2 mmt
Remaining Life Of Mine (post-2001)	24 yrs	8 yrs	10.7 yrs	0.3 yrs	8 yrs
Average No. of Employees	600	0	0	0	0
Total Projected State Revenues (post-2001) ³	\$ 1,012.3 million	\$ 484.0 million	\$ 608.3 million	\$ 123.1 million	\$ 485.2 million
Total Projected Federal Revenues (post-2001) ⁴	\$ 758.6 million	\$ 364.8 million	\$ 470.6 million	\$ 97.2 million	\$ 373.6 million

¹ Assumes 95 percent recovery of leased coal for the No Action Alternative, 92 percent recovery of leased coal for Proposed Action; 79.5 percent recovery of leased coal for Alternative 2; 71.9 percent recovery of leased coal for Alternative 3, North Tract; and 81.8 percent recovery of leased coal for Alternative 3, South Tract.

² For the Proposed Action and Alternatives 2 and 3, the disturbed acreage exceeds the leased acreage because of the need for highwall reduction, topsoil removal and other activities outside the lease boundaries. When added to the existing mine, the permit area is larger than leased or disturbed areas to assure that all disturbed lands are within the permit boundary and to allow easily defined legal land description. Permit areas under Proposed Action and Alternatives 2 and 3 are the anticipated permit amendment baseline study areas.

³ Projected revenue to the State of Wyoming is \$1.10 per ton of coal sold and includes income from severance tax, property and production taxes, sales and use taxes, and Wyoming's share of federal royalty payments and bonus bids (University of Wyoming 1994).

⁴ Federal revenues are based on \$5.00 per ton price × amount of recoverable coal × federal royalty of 12.5 percent minus State's 50 percent share, plus \$0.35 per ton for AML fees × amount of recoverable coal minus State's 50 percent share, plus \$5.00 per ton price × amount of recoverable coal × black lung tax of 4.0 percent, plus bonus payment on LBA leased coal of \$0.26 per ton (based on average of last 11 LBAs) × amount of in-place coal minus State's 50 percent share.

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Table ES-3. Summary Comparison of Coal Production, Surface Disturbance, and Mine Life for West Roundup LBA Tract and North Rochelle Mine.

Item	No Action Alternative (Existing North Rochelle Mine)	Added by Proposed Action	Added by Alternative 2	Added by Alternative 2 Plus Lease WYW-127221 Modification	Added by Alternative 3	Added by Alternative 3 Plus Lease WYW-127221 Modification
In-Place Coal (as of 1/1/02)	283 mmt	173.2 mmt	224.6 mmt	237.6 mmt	274.2 mmt	287.2 mmt
Recoverable Coal (as of 1/1/02) ¹	255 mmt	155.9 mmt	202.1 mmt	213.8 mmt	246.8 mmt	258.5 mmt
Coal Mined Through 2001	49.3 mmt	—	—	—	—	—
Lease Area ²	3,443.50 ac	1,870.65 ac	2,496.79 ac	2,652.69 ac	2,894.03 ac	3,049.93 ac
Total Area To Be Disturbed ²	5,288 ac	3,161 ac	3,161 ac	3,161 ac	3,591 ac	3,591 ac
Permit Area ²	7,042 ac	3,228.5 ac	3,228.5 ac	3,228.5 ac	3,228.5 ac	3,228.5 ac
Average Annual Post-2001 Coal Production	35 mmt	0 mmt	0 mmt	0 mmt	0 mmt	0 mmt
Remaining Life Of Mine (post-2001)	7.3 yrs	4.5 yrs	5.8 yrs	6.1 yrs	6.7 yrs	7.1 yrs
Average No. of Employees	224	176	176	176	176	176
Total Projected State Revenues (post-2001) ³	\$ 280.5 million	\$ 171.5 million	\$ 222.3 million	\$ 235.2 million	\$ 271.5 million	\$ 284.4 million
Total Projected Federal Revenues (post-2001) ⁴	\$ 212.1 million	\$ 129.7 million	\$ 168.1 million	\$ 177.9 million	\$ 205.3 million	\$ 215.1 million

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- ¹ Assumes 90 percent recovery of leased coal.
- ² For the Proposed Action and Alternatives 2 and 3, the disturbed acreage exceeds the leased acreage because of the need for highwall reduction, topsoil removal and other activities outside the lease boundaries. When added to the existing mine, the permit area is larger than leased or disturbed areas to assure that all disturbed lands are within the permit boundary and to allow easily defined legal land description. Permit areas under Proposed Action and Alternatives 2 and 3 are the anticipated permit amendment baseline study areas.
- ³ Projected revenue to the State of Wyoming is \$1.10 per ton of coal sold and includes income from severance tax, property and production taxes, sales and use taxes, and Wyoming's share of federal royalty payments and bonus bids (University of Wyoming 1994).
- ⁴ Federal revenues are based on \$5.00 per ton price × amount of recoverable coal × federal royalty of 12.5 percent minus State's 50 percent share, plus \$0.35 per ton for AML fees × amount of recoverable coal minus State's 50 percent share, plus \$5.00 per ton price × amount of recoverable coal × black lung tax of 4.0 percent, plus bonus payment on LBA leased coal of \$0.26 per ton (based on average of last 11 LBAs) × amount of in-place coal minus State's 50 percent share.
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Table ES-4. Summary Comparison of Coal Production, Surface Disturbance, and Mine Life for West Antelope LBA Tract and Antelope Mine.

Item	No Action Alternative (Existing Antelope Mine)	Added by Proposed Action	Added by Alternative 2	Added by Alternative 3
In-Place Coal (as of 1/1/02)	553.5 mmt	293.9 mmt	321.8 mmt	202.3 mmt
Mineable Coal (as of 1/1/02)	373.4 mmt	245.6 mmt	273.4 mmt	183.2 mmt
Recoverable Coal (as of 1/1/02) ¹	347.3 mmt	228.4 mmt	254.3 mmt	170.4 mmt
Coal Mined Through 2001	168.7 mmt	—	—	—
Lease Area ²	8,019.2 ac	3,542.19 ac	3,877.90 ac	2,809.13 ac
Total Area To Be Disturbed ²	8,821.1 ac	3,200 ac	3,500 ac	2,467 ac
Permit Area ²	10,848.6 ac	4,328.4 ac	4,328.4 ac	3,448.4 ac
Average Annual Post-2001 Coal Production	13.9 mmt	9.1 mmt	10.2 mmt	6.8 mmt
Remaining Life Of Mine (Post-2001)	25 yrs	0 yr	0 yr	0 yr
Average No. of Employees	215	0	0	0
Total Projected State Revenues (post-2001) ³	\$ 382.0 million	\$ 251.2 million	\$ 279.7 million	\$ 187.4 million
Total Projected Federal Revenues (post-2001) ⁴	\$ 238.8 million	\$ 195.2 million	\$ 216.7 million	\$ 143.4 million

¹ Assumes 93 percent recovery of leased coal remaining after eliminating coal that won't be mined beneath Antelope Creek and adjacent buffer zone.

² For the Proposed Action and Alternatives 2 and 3, the disturbed acreage is less than leased acreage because some of the coal is beneath Antelope Creek and the adjacent buffer zone and would not be mined. When added to the exiting mine, the permit area is larger than leased or disturbed areas to assure that all disturbed lands are within the permit boundary and to allow easily defined legal land description. Permit areas under Proposed Action and Alternatives 2 and 3 are anticipated permit amendment baseline study areas.

³ Projected revenue to the State of Wyoming is \$1.10 per ton of coal sold and includes income from severance tax, property and production taxes, sales and use taxes, and Wyoming's share of federal royalty payments and bonus bids (University of Wyoming 1994).

⁴ Federal revenues are based on \$5.00 per ton price × amount of recoverable coal × federal royalty of 12.5 percent minus State's 50 percent share, plus \$0.35 per ton for AML fees × amount of recoverable coal minus State's 50 percent share, plus \$5.00 per ton price × amount of recoverable coal × black lung tax of 4.0 percent, plus bonus payment on LBA leased coal of \$0.26 per ton (based on average of last 11 LBAs) × amount of in-place coal minus State's 50 percent share.

Figure ES-6

ACC as the Anderson, Lower Anderson, Canyon/Upper Canyon, and Lower Canyon). Average coal thickness on each LBA tract varies from around 67 ft up to around 98 ft, and interburden between the coal seams varies from 0 to around 100 ft. Average overburden on each tract ranges from around 110 ft to more than 300 ft.

The existing topography on each LBA tract that is leased and mined would be substantially changed during mining. A highwall with a vertical height equal to overburden plus coal thickness would exist in the active pits. Following reclamation, the average surface elevation would be lower due to removal of the coal. The reclaimed land surface would approximate premining contours and the basic drainage network would be retained, but the reclaimed surface would contain fewer, gentler topographic features. This could contribute to reduced habitat diversity and wildlife carrying capacity on the LBA tracts after mining and reclamation is completed. These topographic changes would not conflict with regional land use, and the postmining topography would adequately support anticipated land use for each tract.

The geology from the base of the coal to the land surface would be subject to considerable permanent change on each LBA tract that is leased and mined under any of the leasing alternatives. The overburden, interburden, and coal would be removed from each LBA tract. The replaced overburden and interburden would be a relatively homogeneous

mixture compared to the premining layered overburden.

Development of other minerals potentially present on the LBA tracts could not occur during mining, but could occur after mining. Conventional oil and gas wells would have to be plugged and abandoned during mining but could be recompleted after mining if the remaining reserves justify the expense of the recompletion.

CBM development and production are occurring in the Wyoming PRB from coal beds of the Wyodak - Anderson zone. These are the same (or equivalent) seams that are being mined along the eastern margin of the basin, including the mines which are considered in this analysis. CBM wells presently exist or have been proposed in and around the five LBA tracts in the General Analysis Area.

All facilities and equipment associated with oil and gas development (conventional or CBM) that are present on coal leases must be removed prior to mining. Royalties would be lost to both the state and federal governments if conventional oil and gas wells are abandoned prematurely, if federal CBM resources are not recovered prior to mining, or if federal coal resources are not recovered due to conflicts between oil and gas development and coal mining. Mining the coal prior to recovery of all of the CBM resources releases CBM into the atmosphere.

Consequences to soil resources from mining each LBA tract that is leased would include changes in the

physical, biological, and chemical properties. Following reclamation, the soils would be unlike premining soils in texture, structure, color, accumulation of clays, organic matter, microbial populations, and chemical composition. The replaced topsoil would be much more uniform in type, thickness, and texture. It would be adequate in quantity and quality to support planned postmining land uses (i.e., wildlife habitat and rangeland).

For surface coal mining, the major types of emissions that affect air quality occur in the form of fugitive dust and exhaust emissions from large motorized equipment. Activities such as blasting, loading, and hauling of overburden and coal, as well as the large areas of disturbed land, produce particulate emissions. Since 1989, the regulated particulate pollutant in Wyoming has been PM₁₀, which matches federal standards. PM₁₀ is particulate matter with an aerodynamic diameter of 10 microns or less. The previous regulated pollutant was TSP. Figures ES-7 through ES-10 show the results of dispersion modeling of PM-10 that was conducted for each mine to demonstrate that BACT is utilized to control emissions and that the proposed mining activities will not cause or significantly contribute to an exceedance of annual ambient air quality standards. For the results shown in Figures ES-7 through ES-10, the modeled production rates are equal to or greater than the proposed production rates for mining the LBA tracts, if they are leased.

Air quality impacts are monitored to determine if mining operations are meeting annual ambient air quality standards. At the four mines included in this analysis, there are a total of 13 TSP monitoring samplers and 11 PM₁₀ monitoring samplers. As a result of an increase in particulate emissions in 1999 and 2000, all PM₁₀ monitors are required by WDEQ/AQD to sample air quality for a 24-hour period every three days, beginning in 2002. Prior to 2002, each mine sampled air quality for a 24-hour period every six days at multiple monitoring sites. All of the mines are utilizing BACT measures to control particulate emissions and complying with the increased monitoring frequency.

Under Alternative 1, the No Action Alternative, for each of the LBA tracts, the impacts to air quality would be the same as those currently permitted. If the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts are leased, these moderately adverse, short-term impacts to air quality would be extended onto the newly leased lands during the time they are mined.

The PM₁₀ 24-hour NAAQS has not been exceeded at the North Antelope/Rochelle Complex. If the North Antelope/ Rochelle Complex acquires the NARO North and NARO South LBA Tracts, an increase in emissions is anticipated due to increased average annual production,

Figure ES-7

Figure ES-8

Figure ES-9

Figure ES-10

increased overburden movement, and increased blast frequency.

The PM₁₀ 24-hour NAAQS was not exceeded at the Black Thunder Mine prior to 2002. During 2002 there was one 24-hour exceedance of the PM₁₀ 24-hour NAAQS at one of the Black Thunder Mine's air quality monitoring sites. As a result of the exceedance, the Black Thunder Mine is implementing additional actions including elimination of unnecessary roads, periodic application of magnesium chloride and surfactants to roads, reducing the dump height of the draglines, and increasing efforts for timely reclamation of disturbed areas.

Emissions associated with mining the Little Thunder LBA Tract are expected to increase over those modeled in Black Thunder Mine's current air permit if the tract is leased. Maximum coal production is anticipated to be 68.5 mmtpy with or without the Little Thunder LBA Tract, but production at this rate would occur for a longer time with the LBA tract. Overburden thickness would increase. Black Thunder Mine, in conjunction with WDEQ/AQD, is developing improvements in emission control activities to remedy current elevated levels of emissions. If the mine cannot demonstrate compliance in a permit for the proposed maximum production rate of 100 mmtpy, a lower maximum production rate and/or further expansion of emission control activities at the mine would have to be evaluated for compliance prior to approval of mining operations on the Little Thunder LBA Tract.

The PM₁₀ 24-hour NAAQS was not exceeded at the North Rochelle Mine prior to 2002. During 2001 and early 2002, there were a total of 10 exceedances of the PM₁₀ 24-hour NAAQS at the North Rochelle air quality monitoring sites. Specific measures implemented at the North Rochelle Mine so far as a result include chemical stabilization of disturbed ground, surface roughening through creation of windrows, and mulching and crimping activities. These measures are being implemented on disturbed acres susceptible to wind scouring, including stockpiles, areas stripped for mine advance, and areas being brought to final grade. In addition, the mine is inter-seeding areas where the recent drought has hindered revegetation success.

An increase in emissions is projected if the West Roundup LBA Tract is leased and mined as compared to the currently permitted North Rochelle Mine operation. Coal production is anticipated to be approximately 35 mmtpy, with or without the West Roundup LBA Tract, but production at this rate would occur for a longer time with the LBA tract. Overburden thickness would increase. North Rochelle Mine, in conjunction with WDEQ/AQD, is developing improvements in emission control activities to remedy current elevated levels of emissions. If compliance cannot be demonstrated in a permit for the proposed production rate of 35 mmtpy, a lower annual production rate and/or further expansion of emission control activities at the mine would have to be evaluated for compliance prior to approval of

mining operations on the West Roundup LBA Tract.

The PM₁₀ 24-hour NAAQS has not been exceeded at the Antelope Mine. If the Antelope Mine acquires the West Antelope LBA Tract, the emissions due to coal and overburden removal operations (i.e., haulage, blasting, etc.) at the maximum planned production rate of 32 mmtpy would occur for a longer period of time than is shown in the current approved air quality permit.

Blasting is responsible for another type of emission from surface coal mining. Overburden blasting sometimes produces gaseous orange-colored clouds that contain NO₂. NO₂ is one of several products resulting from the incomplete combustion of the explosives used in the blasting process. There have been no reported events of public exposure to NO₂ from blasting activities at the North Antelope/Rochelle Complex, North Rochelle Mine or Antelope Mine through 2001. There were several reported incidences of public exposure to NO₂ from blasting at the Black Thunder Mine prior to 2001.

These mines have all employed measures to control and/or limit public exposure to intermittent, short-term (blasting) releases. Measures have been implemented at the Black Thunder Mine to control/limit public exposure to intermittent, short-term (blasting) releases, including notification of neighbors and workers in the general area of the mine prior to the blast; timing blast detonation to avoid temperature inversions and minimize

inconvenience to neighbors; monitoring of weather and atmospheric conditions prior to the decision to detonate a blast; posting of signs on major public roads that enter the general mine area and on all locked gates accessing the active mine area; and closing public roads when appropriate to protect the public. No reports of public exposure to NO₂ related to blasting at the Black Thunder Mine have been received since early 2001. According to OSM, no citizen complaints related to any blasting in the Wyoming PRB were received by OSM or WDEQ during the 2001 evaluation year, which ended on September 30, 2001 (OSM 2002).

Changes in runoff characteristics and sediment discharges would occur during mining of each LBA tract, and erosion rates could reach high values on the disturbed areas because of vegetation removal. However, state and federal regulations require that surface runoff from mined lands be treated to meet effluent standards, so sediment would be deposited in ponds or other sediment-control devices at each mine. After mining and reclamation are completed on each tract, surface water flow, quality, and sediment discharge would approximate premining conditions.

Mining the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts would enlarge the area of lowered groundwater levels in the coal and overburden aquifers associated with the existing mining operations, as well as the area where the existing coal and overburden aquifers would

be removed and replaced by mine backfill. At each mine, drawdown in the adjacent continuous coal aquifer would be expected to increase roughly in proportion to the increase in area affected by mining and would extend farther than drawdown in the discontinuous overburden aquifers. The data available indicate that hydraulic properties of the backfill would be comparable to the premining overburden and coal aquifers. TDS concentration levels of groundwater in the backfill would initially be expected to be higher than in the premining overburden and coal aquifers, but would be expected to meet Wyoming Class III standards for use as stock water.

AVF investigations conducted within the General Analysis Area have identified AVFs that occur along Porcupine Creek, Antelope Creek, Little Thunder Creek, and North Prong Little Thunder Creek downstream of the LBA tracts. Based on preliminary AVF determinations, it is unlikely that any potential AVFs on the NARO North, NARO South, Little Thunder, or West Roundup LBA Tracts meet the criteria to be significant to agriculture. AVFs that are not significant to agriculture can be disturbed during mining but must be restored as part of the reclamation process. A portion of Antelope Creek within the current Antelope Mine permit area has been designated by WDEQ/LQD as “possible subirrigated AVF of minor importance to agriculture”. A portion of this declared AVF is within the West Antelope LBA Tract, however, ACC’s current approved mining and reclamation plan avoids disturbing

Antelope Creek and an adjacent designated buffer zone on existing leases, and ACC does not plan to disturb Antelope Creek and the designated buffer zone if they acquire the West Antelope LBA Tract.

Jurisdictional wetlands have been identified on the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts. A maximum of 62.16 acres of jurisdictional and 51.58 acres of non-jurisdictional wetlands would be disturbed if all five LBA tracts are leased and subsequently mined. Special permitting procedures are required to assure that, after mining, there will be no net loss of jurisdictional wetlands. In Wyoming, once a wetland delineation is completed and verified by COE, it is made a part of the mine permit document. The reclamation plan is then revised to incorporate restoration of at least equal types and number of jurisdictional wetlands.

Mining would progressively remove the native vegetation on each LBA tract that is leased. Reclamation and revegetation of this land would occur contemporaneously with mining. Re-established vegetation would be dominated by species mandated in the reclamation seed mixtures, which are approved by the WDEQ. The majority of these species would be native to the LBA tracts. Initially, the reclaimed land on each tract would be dominated by grassland vegetation which would be less diverse than the premining vegetation. Estimates for the time it would take to restore sagebrush to premining density levels range from 20 to 100 years. An

indirect impact associated with this vegetative change would potentially be a decreased big game habitat carrying capacity. However, a diverse, productive, and permanent vegetative cover would be established on each LBA tract within about 10 years following reclamation, prior to release of the final reclamation bond. The decrease in plant diversity would not seriously affect the potential productivity of the reclaimed areas, and the proposed postmining land uses (wildlife habitat and rangeland) should be achieved even with the changes in vegetation composition and diversity. The reclamation plans for each LBA tract that is leased would also include steps to control invasion by weedy (invasive, nonnative) plant species. The surface of each LBA tract includes privately owned land, and the private landowners would have the right to manipulate the vegetation on their lands as they desire, once the final reclamation bond is released.

One threatened plant species, Ute ladies'-tresses, has been found on Antelope Creek, in northwestern Converse County. Surveys of potentially suitable habitat were conducted on the NARO North, NARO South, Little Thunder, West Roundup and West Antelope LBA Tracts during times of flowering of the known population. Ute ladies'-tresses orchid individuals were not identified during these surveys.

Site-specific wildlife data for the NARO North, NARO South, Little Thunder, West Roundup and West Antelope LBA Tracts were principally obtained from WDEQ/LQD permit

applications and annual wildlife reports for the applicant mines. Baseline and annual monitoring surveys cover large perimeters around the existing mine permit areas. Consequently, a majority of the LBA tracts have been surveyed during baseline and annual wildlife surveys for Jacobs Ranch Mine, Black Thunder Mine, North Rochelle Mine, Antelope Mine, and the North Antelope/Rochelle Complex. No crucial big game habitat or migration corridors are recognized by the WGFD in the General Analysis Area. In the short term, wildlife would be displaced from the LBA tracts in areas of active mining. Habitat would be disturbed in parcels, with reclamation progressing as new disturbance occurs. In the long term, following reclamation, carrying capacity and habitat diversity may be reduced due to flatter topography, less diverse vegetative cover, and reduction in sagebrush density.

Federally listed T&E wildlife species that may occur in the General Analysis Area include bald eagle (threatened), black-footed ferret (endangered), mountain plover (proposed threatened), and black-tailed prairie dog (candidate). Some wildlife surveys conducted on the NARO North and South, Little Thunder, West Roundup, and West Antelope LBA Tracts have been specifically conducted for T&E species, others did not specifically target T&E species, but habitats for listed species and occurrences of listed species were observed and noted. Bald eagles have been observed in the vicinity of each of the five LBA tracts, and were observed

during recent (2001) wildlife surveys in or around the NARO North, NARO South, and West Antelope LBA Tracts. Bald eagle roosts and unique or concentrated sources of carrion or prey have not been documented in the study areas for any of the LBA tracts. Black-footed ferrets are rare and very unlikely to occur in the vicinity of any of the LBA tracts. They are closely associated with prairie dogs. With the exception of a single skull collected during baseline studies for the Antelope Mine in 1979, no evidence of ferrets has been recorded during surveys in or around the LBA tracts. Mountain plovers may also be associated with prairie dog colonies. There have been no sightings of mountain plover in the vicinity of the West Roundup LBA Tract. There have been sightings of mountain plovers in the vicinity of the NARO North, NARO South, and Little Thunder LBA Tracts, but there were no such sightings during recent (2000-2001) surveys on these tracts. The mountain plover is a regular migrant and summer resident in the vicinity of the Antelope Mine and portions of the West Antelope LBA Tract. There are a number of black-tailed prairie dog colonies located on existing coal leases, on the LBA tracts, or in the vicinity of the LBA tracts.

Active mining would preclude other land uses. Recreational use is severely limited during mining operations. The surface estate of the NARO South and West Antelope LBA Tracts is all privately owned. On private lands, access for recreational use is determined by the landowner. Portions of the surface estate of the NARO North, Little Thunder, and

West Roundup LBA Tracts are part of the TBNG, which is administered by the USFS. Access to these lands would be restricted during mining and reclamation. Energy development in the PRB (primarily coal mining and oil and gas development) has and will continue to contribute to a reduction in hunting opportunities for some animals (pronghorn, mule deer, and sage grouse).

Mining would also impact oil and gas development on both federal and private oil and gas leases, if the federal coal tracts are leased. As discussed above, existing CBM and conventional oil and gas wells would have to be plugged and abandoned, and all facilities and equipment associated with oil and gas development that are present on coal leases would have to be removed prior to mining. New drilling would not be possible in areas of active mining, but could potentially take place in areas not being mined, or in reclaimed areas. CBM that is not recovered prior to mining would be vented and irretrievably lost as the coal is removed.

Cultural resources on the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts would be impacted by mining, but adverse impacts would be mitigated through data recovery and/or avoidance of significant properties. Formal Wyoming SHPO consultation is required for concurrence with determination of the eligibility of sites for inclusion on the NRHP prior to mining. The eligible cultural properties on each

LBA tract which cannot be avoided or which have not already been subjected to data recovery action would be carried forward in the mining and reclamation plan as requiring protective stipulations until a testing, mitigation, or data recovery program is developed in consultation with the SHPO.

No sites of Native American religious or cultural importance have been identified on the NARO North, NARO South, Little Thunder, West Roundup, or West Antelope LBA Tracts. If such sites or localities are identified at a later date, appropriate action must be taken to address concerns related to those sites.

No unique or significant paleontological resources have been identified on the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts, and the likelihood of encountering significant paleontological resources is small.

Mining activities at the existing North Antelope/Rochelle Complex, and Black Thunder, North Rochelle, and Antelope Mines are currently visible from State Highway 450, State Highway 59, County Road 37, Antelope Road, Reno Road and Edwards Road. Mining activities on the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts would also be visible from these roads. No unique visual resources have been identified on or near any of the LBA tracts. The landscape character would not be significantly changed following reclamation.

Noise levels on the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts would be increased considerably by mining activities such as blasting, loading, and hauling. Because of the remoteness of the LBA tracts and because mining is already ongoing in the area, there would be few new off-site noise impacts. After mining and reclamation are completed, noise would return to premining levels.

No new or reconstructed transportation facilities would be required if the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts are leased and subsequently mined. Leasing the LBA tracts would extend the length of time that coal is shipped from the permitted North Antelope/Rochelle Complex, Black Thunder Mine, and North Rochelle Mine. Mine life would not be increased for the Antelope Mine, but average productions levels would be higher. Active pipelines and utility lines would have to be relocated in accordance with previous agreements, or agreements would have to be negotiated for their removal or relocation.

Socioeconomic impacts resulting from the leasing and subsequent mining of the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts would include an increase in federal, state, and local revenues as a result of the coal bonus and royalty payments as well as severance and property taxes.

Royalty and bonus payments for the federal coal in the LBA tracts would be split with the state. If the five LBA tracts are leased and mined as proposed, cumulative federal revenues would be about \$1.1 billion, assuming a coal bonus of 26 cents per ton (the average of bonus payments for past coal lease sales in the Wyoming PRB) and a coal price of \$5.00 per ton.

A 1994 University of Wyoming study estimated that the total direct fiscal benefit to the State of Wyoming from coal mining taxes and royalties is \$1.10 per ton of coal mined. Using that estimate, if the five LBA tracts are leased and mined as proposed, cumulative state revenues would be about \$1.5 billion.

Mine life would be extended and employment would be increased or maintained at the North Antelope/Rochelle Complex, Black Thunder Mine, and North Rochelle Mine. Mine life and employment would be stable at the Antelope Mine, but maximum production levels would be extended. Economic stability would be maintained in the communities in this area without placing major additional demands on the existing infrastructure or services.

With regard to Environmental Justice issues, it was determined that potentially adverse impacts would not disproportionately affect minorities, low-income groups, or Native American tribes or groups. No tribal lands or Native American communities are included in the General Analysis Area, and no Native American treaty rights or Native

American trust resources are known to exist for this area.

Under the No Action Alternative, the impacts described in the preceding paragraphs to topography and physiology, geology and minerals, soils, air quality, water resources, AVFs, wetlands, vegetation, wildlife, threatened, endangered, proposed, and candidate species, USFS sensitive species, land use and recreation, cultural resources, Native American concerns, paleontological resources, visual resources, noise, transportation, and socioeconomics would occur on the existing North Antelope/Rochelle Complex, Black Thunder Mine, North Rochelle Mine, and Antelope Mine coal leases, but these impacts would not be extended onto the LBA tracts. Portions of the LBA tracts adjacent to the existing applicant mines would be disturbed to recover the coal in the existing leases.

If impacts are identified during the leasing process that are not mitigated by existing required mitigation measures, BLM can include additional mitigation measures, in the form of stipulations on new leases, within the limits of its regulatory authority. BLM has not identified additional special stipulations that should be added if the NARO North, NARO South, Little Thunder, West Roundup, or West Antelope LBA Tracts are leased, or areas where additional or increased monitoring measures are recommended.

Cumulative impacts result from the incremental impacts of an action added to other past, present, and

reasonably foreseeable future actions, regardless of who is responsible for such actions. Cumulative impacts can result from individually minor, but collectively significant, actions occurring over time.

Since decertification of the Powder River Federal Coal Region in 1990, the BLM Wyoming State Office has issued 11 new federal coal leases containing approximately 3.2 billion tons of coal using the LBA process. This leasing process has undergone the scrutiny of two appeals to the Interior Board of Land Appeals and one audit by the General Accounting Office.

Applications have been received for nine additional federal coal tracts, including the applications for the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts. These pending LBA applications contain approximately 2.3 billion tons of coal. All of the pending applications have been reviewed and recommended for processing by the PRRCT.

Four regional EISs evaluating coal development in the PRB in Wyoming have previously been prepared. They are:

Final Environmental Impact Statement, Eastern Powder River Coal Basin of Wyoming, BLM, October 1974;

Final Environmental Impact Statement, Eastern Powder River Coal, BLM, March 1979;

Final Environmental Impact Statement, Powder River Coal Region, BLM, December 1981;

Draft Environmental Impact Statement, Round II Coal Lease Sale, Powder River Region, BLM, January 1984.

Since 1989, coal production in the PRB has increased by approximately 6.8 percent per year. The increasing state production is primarily due to increasing sales of low-sulfur, low-cost PRB coal to electric utilities who must comply with Phase I requirements of Title III of the 1990 Clean Air Act Amendments. Electric utilities account for 97 percent of Wyoming's coal sales.

Oil production has decreased in the Wyoming PRB since 1990, but natural gas production has been increasing, particularly in Campbell County. This is due to the development of shallow CBM resources west of the coal mines. CBM exploration and production are currently ongoing throughout the Wyoming PRB. Since the early 1990s, BLM has completed numerous EAs and EISs analyzing CBM projects. The latest of these is the *Draft Environmental Impact Statement and Draft Planning Amendment for the Powder River Basin Oil and Gas Project*, which was completed in January 2002. The project area for this EIS includes almost eight million acres of mixed federal, state, and private lands within the Wyoming portion of the PRB. The EIS is evaluating the impacts of drilling, completing, operating, and reclaiming almost 39,400 new federal, state, and private CBM wells in addition to the

roughly 12,100 federal, state, and private CBM wells already drilled or permitted within the project area. The draft EIS also analyzes the impacts of developing 3,200 new conventional oil and gas wells, as well as constructing, operating, and reclaiming various ancillary facilities needed to support the new CBM and conventional wells, including roads, pipelines for gathering gas and produced water, electrical utilities, and compressors (BLM 2002a). A final EIS is in preparation. Under the current process for approving CBM drilling, CBM wells can be drilled on private and state oil and gas leases after approval by the WOGCC and the Wyoming SEO. On federal oil and gas leases, BLM must analyze the individual and cumulative environmental impacts of all drilling, as required by NEPA, before CBM drilling can be authorized.

CBM wells have been drilled in or around the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts. CBM drilling and production are expected to continue in the areas around the coal mines and on the LBAs. Due to the proximity of the coal mining and CBM production operations, cumulative impacts to groundwater, surface water, air quality, and wildlife have occurred and are likely to continue as more CBM resources are developed adjacent to existing surface coal mines.

Other minerals or materials that are produced in the Wyoming PRB include uranium, bentonite, and scoria. Other mineral development

levels in the Wyoming PRB are currently lower than predicted in the regional EISs.

In addition to the ongoing coal mining and leasing and the CBM development, there are other projects which are in progress or have been proposed in the Wyoming PRB. These projects include the Wygen I 90-Mw coal-fired power plant currently under construction by Black Hills Energy, Inc. near the Wyodak Mine east of Gillette; the Two Elk 300-Mw coal-fired power plant proposed for construction by NAPG east of the Black Thunder Mine; the Wygen II 500-Mw coal-fired power plant that would be built near Wyodak Mine east of Gillette by Black Hills Energy, Inc.; the proposed DM&E rail line; the Two Elk Unit Two 500-Mw coal-fired power plant, which NAPG also proposes to build east of the Black Thunder Mine; construction and operation by NAPG of another 500-Mw coal-fired power plant, the Middle Bear facility, near the Cordero-Rajo Mining Complex; and the ENCOAL coal enhancement facility, which was proposed for construction at the North Rochelle Mine but has been indefinitely delayed.

The existing development in the PRB has resulted in the introduction of roads, railroads, power lines, fences, mine structures, and oil and gas production equipment, and this will continue as development in the PRB continues. This area has already undergone change from a semi-agricultural-based economy to a coal mining and oil and gas economy. Environmentally, the open, basically treeless landscape has been visibly

altered by construction, equipment, and human activities. Leasing the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts would increase the total area that would be affected by mining but would not cause a significant cumulative change in daily impacts because they would be extensions of ongoing operations at existing mines and mining disturbance is progressive with reclamation proceeding contemporaneously. Cumulative impacts vary by resource and range from being almost undetectable to being substantial. Cumulative impacts on air quality, groundwater quantity and quality, and wildlife habitat have created the greatest concern.

An air quality impact assessment predicting potential far-field cumulative air quality impacts, using the EPA CALMET/CALPUFF dispersion modeling system, has been prepared to predict maximum potential air quality impacts at mandatory federal PSD Class I areas downwind of proposed oil and gas development in the PRB in northeast Wyoming and southeast Montana.

The assessment considered potential air pollutant emission sources from proposed CBM development in Wyoming and Montana combined with other reasonably foreseeable development (RFD) emission sources to predict the total potential cumulative impact to air quality. Surface coal mining operations in Montana and Wyoming were included as other RFD emission sources in this assessment.

The cumulative far-field impacts predicted in this air quality impact assessment would be the same under the Proposed Action and all of the Alternatives for leasing or not leasing federal coal considered in this EIS because the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts are all maintenance tracts, which would be leased to extend operations at existing mines. Selection of any of the leasing alternatives considered in this EIS would not introduce new sources of impacts to air quality, but would change the location of the sources of those impacts to the newly leased tracts and would extend the period of time that those existing sources would be in operation. Selection of any or all of the No-Action alternatives (Alternative 1) considered in this EIS (not leasing the coal included in one or more of the LBA tracts) would not affect any of the currently approved mining operations on existing leases.

Coal mines develop predictive models to assess the potential air quality impacts of their mining operations. The predictive modeling conducted for PRB mines indicates that mining operations do not have significant off-site particulate pollution impacts, even when production and pollution from neighboring mines are considered. This modeling is based on the assumption that mining activities are sufficiently removed from the permit boundaries and that neighboring mines are not actively mining in the immediate vicinity (within 0.6 to 2.5 miles). In cases where mines are in close proximity (within two miles), WDEQ/AQD

follows a modeling protocol which accounts for all mine-generated particulate air pollutants from all nearby mines to determine impacts to ambient air quality. Examples of the impacts predicted by these models are shown in Figures ES-7 through ES-10.

Figure ES-11 shows modeled and extrapolated worst-case coal aquifer drawdown as a result of surface coal mining at the mines located south and east of Wright, Wyoming, if the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts are leased. Currently, coal drawdowns from the Jacobs Ranch, Black Thunder, and North Rochelle Mines have coalesced, and drawdowns from the North Antelope/Rochelle Complex and Antelope Mine have coalesced. The areas of drawdown from the five southern mines will coalesce in the future with or without the addition of mining activity on the five LBA tracts considered in this EIS. Dewatering activities associated with reasonably foreseeable CBM development would be expected to overlap with and expand the area of groundwater drawdown in the coal aquifer in the PRB. Monitoring of backfill areas indicates that reclaimed areas are being recharged with water generally suitable for livestock use (the premining use).

Wildlife habitat quality has declined in the PRB due to a continuing trend of landscape fragmentation from roads, rail lines, oil and gas wells, coal mines, and fences. Mining of the NARO North, NARO South, Little Thunder, West Roundup, and West

Antelope LBA Tracts would add to this habitat fragmentation. Wildlife monitoring indicates that wildlife use reclaimed areas.

This EIS presents the BLM's analysis of environmental impacts under authority of the NEPA and associated rules and guidelines. The BLM will use this analysis to make separate decisions to lease or not lease the federal coal included in the NARO North, NARO South, Little Thunder, West Roundup, and West Antelope LBA Tracts. A decision to hold a competitive sale and issue a lease for the lands in any of these applications is a prerequisite for mining, but it is not the enabling action that would allow mining to begin. The BLM does not authorize mining operations by issuing a lease. After a lease has been issued, but prior to mine development, the lessee must file a permit application package with the WDEQ/LQD and OSM for a surface

Figure ES-11

mining permit and approval of the MLA mining plan. An analysis of a detailed site-specific mining and reclamation plan occurs at that time.